

Remarks

Entrance of this amendment and allowance of the application are respectfully requested. Claims 7, 9-12, 22-24, 29, 31-34, 44-46, 48, 49, 54, 56-59 & 69-71 remain pending.

By this amendment, independent claims 22, 24, 44, 46, 48, 49, 69 & 71 are amended to address the 35 U.S.C. §112 rejection thereto in the final Office Action. Specifically, the "regenerated copy" of the unique identifier is amended herein to comprise the "original" unique identifier of the component. Support for this amended language can be found throughout the application as filed. For example, reference the first paragraph at page 37 of the specification. Since the amendments are presented to address only the 35 U.S.C. §112 rejection in the final Office Action, entrance of the amendment is respectfully requested. It is believed that the amendments to the claims place the claims in condition for allowance and/or better form for consideration on appeal.

Substantively, claims 7, 9-12, 22-24, 29, 31-34, 44-46, 48, 49, 54, 56-59 and 69-71 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Short et al. (U.S. Patent No. 6,178,529 B1; hereinafter Short) in view of Trottier et al. (U.S. Patent No. 4,851,988 A; hereinafter Trottier). This rejection is respectfully traversed and reconsideration thereof is requested.

An "obviousness" determination requires an evaluation of whether the prior art taken as a whole would suggest the claimed invention taken as a whole to one of ordinary skill in the art. In evaluating claimed subject matter as a whole, the Federal Circuit has expressly mandated that functional claim language be considered in evaluating a claim relative to the prior art. Applicants respectfully submit that the application of these standards to the independent claims presented herewith leads to the conclusion that the recited subject matter would not have been obvious to one of ordinary skill in the art based upon the Short and Trottier patents.

As recited in claim 22, for example, applicants' invention comprises a method of managing identifiers of components of a distributed computing environment. This method includes providing, by an operating system instance of the distributed computing environment, an original unique identifier of a component of the distributed computing environment to a

cluster of the distributed computing environment. Thereafter, the cluster stores the unique identifier in local storage and global storage, thereby providing a local unique identifier copy and a global unique identifier copy. The method then includes providing the original unique identifier in response to a cluster event (e.g., rejoining of an operating system instance to the cluster). The method further includes determining, in response to the cluster event, whether the original unique identifier, the local unique identifier and the global unique identifier are in agreement, and, if not, performing an action responsive thereto.

In a related aspect (e.g., claim 24), a method of managing identifiers of components of a distributed computing environment is provided which includes identifying a component of the distributed computing environment by an original unique identifier, and a local copy of the unique identifier, and a global copy of the unique identifier; providing the original unique identifier in response to a cluster event; and automatically updating, by a cluster of the distributed computing environment, one or more of the original unique identifier, the local unique identifier copy and the global unique identifier copy, to provide consistency among the original unique identifier, the local unique identifier copy and the global unique identifier copy, in response to the cluster event.

Applicants respectfully submit that there are numerous differences between their recited methods and the teachings, suggestions and implications provided by Short and Trotter.

Short describes a method and system for resource monitoring of disparate resources in a server cluster. The Office Action analogizes applicants' recited functionality of claim 22 with the teachings of Short, in part, at column 2, lines 51-56. This analogy is believed to be in error. Applicants describe in their process: providing, by an operating system instance of the distributed computing environment, an original unique identifier of a component of the distributed computing environment to a cluster of the distributed computing environment. This unique identifier is then stored in local storage and in global storage, thus providing a local unique identifier and a global unique identifier. In applicants' approach, there are three copies of the identifier, i.e., the original unique identifier, the local unique identifier and the global unique identifier. A careful reading of Short fails to uncover any similar discussion of a process for providing three copies of an identifier to identify a component of a cluster of a distributed

computing environment, let alone the particular three identifiers set forth in applicants' independent claims.

Column 2, lines 51-56 of Short state:

"The invention may also be practiced in distributing computing environments where tasks are performed by remote processing devices that are linked through a communications network. In a distributed computing environment, program modules may be located in both local and remote memory storage devices."

Applicants respectfully submit that the above-cited language from Short does not teach storing by a cluster a unique identifier in local storage and global storage to provide a local unique identifier and a global unique identifier. The language refers to program modules that may be stored in either local or remote memory storage devices, but does not teach or suggest the functionality recited by applicants in the independent claims presented.

Applicants' independent claims further characterize the recited invention as including providing a copy of the original unique identifier in response to a cluster event. For example, in response to a node rejoining the cluster, the unique identifier is obtained during the bootstrap process. This copy of the original unique identifier is then used during a determining step which includes, in response to the cluster event, comparing the original unique identifier, the local unique identifier and the global unique identifier to determine whether all three are in agreement. There is simply no similar concept in Short of generating a unique identifier for a component of a cluster, then storing that unique identifier locally and globally, and thereafter, providing the original unique identifier in response to a cluster event and comparing three unique identifiers, that is, the original unique identifier, the local unique identifier and the global unique identifier to determine whether all the identifiers are in agreement.

The Office Action recognizes that Short does not teach the existence of a global identifier. In this regard, the Office Action references the teachings of Trotter as being relevant to applicants' method. However, applicants respectfully submit that even if the global identifiers described by Trotter are analogized to applicants' recited global unique identifier copy for a particular component of a cluster of a distributed computing environment, as proposed in the Office Action (which they are not), the resultant combined method would still not teach, suggest

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or imply all of the functional characterizations of applicants' invention as recited in independent claims 22 and 24, and as discussed above. In addition, Applicants respectfully submit that the global identifiers discussed in Trotter do not equate to the global unique identifier recited in the independent claims presented. Specifically, Applicants recite storing, by the cluster, the original unique identifier in local storage and global storage. This act of storing by the cluster the unique identifier in global storage results in creation of the global unique identifier. In contrast, the global identifier in Trotter is not provided in global storage, but rather is a local identifier replicated across the different independent computer systems. In Applicants' claim, global storage means globally accessible storage, while in Trotter, the global identifiers are replicated locally across the computer systems, which is different from the functionality recited in the independent claims presented.

To summarize, applicants' independent claims recite functionality which distinguishes their process from the teachings and suggestions of Short and Trotter, either alone or in combination. Neither patent teaches the existence of three copies of an identifier, that is, the original unique identifier copy, the local unique identifier copy and the global unique identifier copy. Further, neither patent teaches or suggests providing a regenerated copy of the unique identifier in response to a cluster event. Further, neither patent teaches or suggests determining whether all three identifiers for a component of a cluster are in agreement, nor the taking of an action based upon such determination.

Further, in certain independent claims, for example, claim 24, applicants recite automatically updating, by a cluster of the distributed computing environment, one or more of the original unique identifier, the local unique identifier copy and the global unique identifier copy, to provide consistency among the identifiers in response to a cluster event. This step of automatically updating is believed to be a clear departure from the teachings of the known art. Applicants respectfully submit that the authentication sequence referenced in Short in the Office Action does not equate to the functionality recited by applicants in the independent claims at issue. Applicants are automatically managing content of identifiers and changing that content as appropriate depending upon changes to the cluster of the distributed computing environment. The authentication described by Short does not teach, suggest or imply applicants' recited


concept of automatically updating one or more of the identifiers to provide consistency among the identifiers.

For all of the above reasons, applicants respectfully request reconsideration and withdrawal of the obviousness rejection stated in the Office Action. The dependent claims are believed allowable for the same reasons as the independent claims from which they directly or ultimately depend, as well as for their own additional characterizations.

All claims are believed to be in condition for allowance and such action is respectfully requested.

Should the Examiner wish to discuss this case with applicants' attorney, the Examiner is invited to contact applicants' representative at the below-listed number.

Respectfully submitted,

  
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